

## 7. Entity-Level Reporting and Future Commitments

### Overview

The Voluntary Reporting Program permits three distinct types of emissions reporting:

- Entity-level emissions and reductions, defined as the emissions and reductions of an entire organization, usually defined as a corporation
- Project-level emissions and reductions, defined as the emission reductions consequences of a particular action
- Commitments to take action to reduce emissions in the future.

Chapters 2 through 6 of this report cover project-level emissions. This chapter covers entity-level emissions, emission reductions, and commitments to reduce emissions in the future. Entity reporting and project reporting are not mutually exclusive. They correspond to different views of the appropriate answer to the question, “What is a reduction?” Most (179, or 79 percent) of the 228 participants in the program for the 2001 data year reported project-level information on emissions and/or reductions, and 109 (48 percent) reported entity-level information. Sixty-one (27 percent) of all the participants in the program reported both entity-level information and project-level information. Thus, 56 percent of the entity-level reporters also chose to report project-level information on emissions and/or emission reductions. Forty-eight firms (21 percent of reporters) reported entity-level information only, whereas 118 (52 percent) submitted only project-level information. In addition, 85 entities, or 38 percent of all participants in the program, reported formal commitments to reduce future greenhouse gas emissions, to take action to reduce emissions in the future, or to provide financial support for activities related to greenhouse gas reductions.

### Entity-Level Reporting

#### Who Reported

Electric power producers accounted for 41 of the 109 entity-level reporters. They included American Electric Power, the Southern Company, the Tennessee Valley Authority (TVA), and most of the largest electric utilities

in the United States. In addition, three subsidiaries of the AES Corporation (an independent power producer) reported on domestic power plants with emissions offset by international forestry projects. The remaining 68 entity-level reporters included aluminum smelters (Alcan Primary Metals Group–Sebree Works, and Columbia Falls Aluminum), two semiconductor manufacturers (Lucent Technologies, Inc., and Motorola Austin), and several large manufacturers (Ford, GM, IBM, Johnson & Johnson, and Rolls-Royce Corporation). Also reporting at the entity level were cement manufacturers (including two plants of the California Portland Cement Company, as well as Lehigh Cement Company and Arizona Portland Cement Company), an oil company (Sunoco, Inc.), a chemical company (Dow Chemical Company), an aircraft manufacturer (Sikorsky Aircraft Corporation), a trade association (Integrated Waste Services Association [IWSA]), the Miller Brewing Company, Bethlehem Steel Corporation, and one household.

#### Reported Emissions

Total 2001 entity-level direct emissions of greenhouse gases reported to the Voluntary Reporting Program were 903 million metric tons carbon dioxide equivalent or 13 percent of total estimated U.S. emissions of greenhouse gases.<sup>45</sup> Total 2001 entity-level indirect emissions reported to the program were 147 million metric tons carbon dioxide equivalent, or 2 percent of total estimated U.S. emission of greenhouse gases. Reported entity-level direct carbon dioxide emissions for 2001 were 877 million metric tons, which represented 97 percent of reported direct emissions— weighted by global warming potential (GWP).

The single largest category of direct emissions reported was the 869 million metric tons carbon dioxide emitted by stationary combustion sources, mostly electric utilities, which represented 99 percent of the total direct carbon dioxide emissions reported for 2001 (Table 25). The largest direct emissions reported were from the Miller Brewing Company, with emissions of 107 million metric tons carbon dioxide (Table 26). The second largest direct emissions reported were from Tennessee Valley Authority, with emissions of 80 million metric tons carbon dioxide, followed by Cinergy Corporation (58 million metric tons), Duke Energy Corporation (55 million metric tons), and FPL Group (52 million metric tons). In addition, PacifiCorp, Entergy Services Inc., DTE Energy/Detroit

<sup>45</sup>Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2001*, DOE/EIA-0573(2001) (Washington, DC, December 2002), web site [www.eia.doe.gov/oiaf/1605/1605a.html](http://www.eia.doe.gov/oiaf/1605/1605a.html).

Edison, FirstEnergy Corporation, Reliant Energy-HLP, PG&E Corporation, and Florida Power Corporation each reported direct emissions of carbon dioxide in the range of 23 to 47 million metric tons for 2001.

Carbon dioxide also accounted for 97 percent of reported indirect emissions of greenhouse gases weighted by GWP. The single largest category of reported indirect emissions for 2001 was 142 million metric tons carbon dioxide resulting from the reporting entities' purchased power transactions. Manufacturers that purchase electricity usually view themselves as responsible for the electricity they consume and, consequently, for any reductions in the quantity of electricity consumed. Utilities, however, have adopted more diverse views. Most electric utilities view themselves as responsible only for

the direct emissions from their stacks. This view is unambiguous, relatively easy to verify, and prevents the same emission from being reported by more than one utility; however, accounting for reductions in emissions caused by substitutions of purchased power for company-generated power adds complexity to the picture.

Some utilities (for example, Hawaiian Electric Company, Portland General Electric, and Niagara Mohawk Corporation) viewed themselves as responsible for their direct emissions plus the indirect emissions from electricity purchases necessary to support their customer base. This approach accounts for the possibility that a decline in generation may be associated with an increase in power purchases, but it may create the appearance of an increase in emissions when a firm is both buying and

**Table 25. Total Reported Entity-Level Carbon Dioxide Emissions by Type and Source, Data Year 2001**  
(Million Metric Tons Carbon Dioxide Equivalent)

Type of Reduction and Emissions Source	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>Direct Emissions</b>												
Stationary Combustion . . . . .	722.1	582.4	679.8	717.1	737.2	881.7	884.2	934.5	991.2	1,430.0	1,006.3	868.5
Transportation . . . . .	0.6	0.1	0.1	0.1	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7
Other Direct Sources . . . . .	3.8	5.8	7.4	7.8	8.0	7.8	8.3	7.7	7.6	7.8	7.7	7.5
<b>Total Direct . . . . .</b>	<b>726.5</b>	<b>588.4</b>	<b>687.3</b>	<b>725.1</b>	<b>745.8</b>	<b>890.1</b>	<b>893.1</b>	<b>942.8</b>	<b>999.4</b>	<b>1,438.4</b>	<b>1,014.5</b>	<b>876.7</b>
<b>Indirect Emissions</b>												
Purchased Power . . . . .	67.7	62.0	58.7	64.8	65.2	115.0	116.9	159.3	129.3	133.8	149.9	141.9
Other Indirect Emissions . . . . .	374.2	365.3	369.4	370.5	372.0	366.6	360.3	352.8	345.5	341.0	0.5	0.5
<b>Total Indirect . . . . .</b>	<b>441.9</b>	<b>427.3</b>	<b>428.1</b>	<b>435.3</b>	<b>437.3</b>	<b>481.6</b>	<b>477.2</b>	<b>512.1</b>	<b>474.8</b>	<b>474.8</b>	<b>150.4</b>	<b>142.4</b>
Electricity Wholesaling . . . . .	8.0	13.5	8.1	7.0	4.2	5.7	-3.9	-51.3	-32.2	-24.5	-14.7	-12.7

Source: Energy Information Administration, Form EIA-1605.

**Table 26. Largest Reported Entity-Level Direct Carbon Dioxide Emissions by Reporter and Source, Data Year 2001**

Reporter	Emissions Source	Reported Direct Carbon Dioxide Emissions (Million Metric Tons)	Percentage of Total Reported Direct Emissions of All Greenhouse Gases
Miller Brewing Company . . . . .	Stationary Combustion	107.1	12.2
Tennessee Valley Authority. . . . .	Stationary Combustion	80.1	9.1
Cinergy Corp. . . . .	Stationary Combustion	57.8	6.6
Duke Energy Corporation . . . . .	Stationary Combustion	54.9	6.3
FPL Group . . . . .	Stationary Combustion	51.8	5.9
PacifiCorp . . . . .	Stationary Combustion	46.8	5.3
Entergy Services, Inc. . . . .	Stationary Combustion	45.0	5.1
DTE Energy/ Detroit Edison . . . . .	Stationary Combustion	39.6	4.5
FirstEnergy Corporation . . . . .	Stationary Combustion	36.9	4.2
Reliant Energy - HL&P . . . . .	Stationary Combustion	35.9	4.1
The Dow Chemical Company . . . . .	Stationary Combustion	26.2	3.0
PG&E Corporation. . . . .	Stationary Combustion	23.3	2.7
Florida Power Corporation . . . . .	Stationary Combustion	22.8	2.6
NiSource/NIPSCO. . . . .	Stationary Combustion	20.1	2.3
<b>Total . . . . .</b>		<b>648.2</b>	<b>73.9</b>

Source: Energy Information Administration, Form EIA-1605.

selling (i.e., trading) increasing volumes of wholesale electricity. Also, double reporting is possible, because both the buyer and seller of the electricity may claim ownership.

Some utilities (for example, DTE Energy/Detroit Edison) also report a “net” view, in which they calculate direct generation emissions plus indirect electricity purchase emissions, minus emissions from “wholesale” electricity sales to other utilities. This approach captures net emissions to supply an end-use customer base, but there is greater potential for double counting, because double reporting is possible for both buying and selling. Further, “generation only” electricity producers, such as independent power producers or generation and transmission cooperatives, would be in the position of defining essentially all their direct emissions as belonging to their customers.

Any organization that reports indirect emissions and reductions is presented with a methodological problem: because the reporter does not control the source of emissions, the reporter may not have sufficient information to estimate emissions accurately. In the case of power purchases, firms that buy electricity may not always know precisely what emissions are associated with their purchases. Most reporters, however, reported only direct emissions. For those who reported indirect emissions, with a few exceptions, the impact of indirect emissions was generally small in comparison with the magnitude of direct emissions. Only a few companies reported direct emissions of other greenhouse gases at the entity level.

Reported direct emissions of gases other than carbon dioxide included 24 million metric tons carbon dioxide equivalent of methane, 1 million metric tons carbon dioxide equivalent of hydrofluorocarbons (HFCs), and less than 1 million metric tons carbon dioxide equivalent of sulfur hexafluoride. Reported direct emissions of nitrous oxide and perfluorocarbons (PFCs), were less than 1 million metric tons carbon dioxide equivalent each (Table 27).

Eleven companies reported entity-level direct emissions of methane for 2001, including Consol Coal Group, Jim Walter Resources, Inc., Peabody Holding Company, Inc., Dow Chemical Company, and Duke Energy Corporation. These five entities together accounted for 89 percent of total reported entity-level direct emissions of other greenhouse gases for 2001 (Table 28). Only three participants in the program, Dow Chemical Company, Rochester Gas & Electric Company, and IWSA, reported direct emissions of nitrous oxide for 2001. The direct emissions of nitrous oxide reported by these three entities together accounted for less than 0.5 percent of total reported entity-level direct emissions of other greenhouse gases for 2001. In addition, one reporter (Alcan Primary Metals Group–Sebree Works) accounted for all direct emissions of perfluorocarbon reported, and five companies (Dow Chemical Company, NiSource/NIPSCO, Public Service Enterprise Group, Sacramento Municipal Utility District, and Southern Company) reported direct emissions of sulfur hexafluoride. Emissions of sulfur hexafluoride reported by these five companies together accounted for 2 percent of total reported

**Table 27. Total Reported Entity-Level Emissions of Other Greenhouse Gases by Type of Emissions, Data Year 2001**  
(Million Metric Tons Carbon Dioxide Equivalent)

Gas and Type of Emissions	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>Methane</b>												
Direct .....	52.7	17.9	18.2	13.9	31.9	32.9	29.5	31.2	31.4	26.2	24.8	24.3
Indirect .....	2.1	2.1	2.1	2.1	2.0	1.9	1.9	1.8	1.7	1.6	0.4	0.4
<b>Nitrous Oxide</b>												
Direct .....	*	*	*	*	*	*	*	*	*	*	0.7	*
Indirect .....	17.3	18.1	19.0	19.8	20.5	20.4	19.9	19.3	18.6	17.9	*	*
<b>Hydrofluorocarbons</b>												
Direct .....	*	*	*	*	*	*	*	*	0.1	0.1	0.1	1.1
Indirect .....	*	*	*	0.2	0.7	1.3	1.8	2.3	2.8	3.3	3.8	3.9
<b>Perfluorocarbons</b>												
Direct .....	0.6	0.6	0.6	0.6	0.3	0.3	0.3	0.3	0.2	0.1	0.2	0.2
<b>Sulfur Hexafluoride</b>												
Direct .....	0.4	0.5	0.5	0.5	0.7	1.7	1.7	1.4	1.1	0.6	0.7	0.6
<b>Total</b>												
<b>Direct .....</b>	<b>53.7</b>	<b>19.0</b>	<b>19.3</b>	<b>14.9</b>	<b>32.9</b>	<b>34.9</b>	<b>31.5</b>	<b>33.0</b>	<b>32.7</b>	<b>27.1</b>	<b>26.4</b>	<b>26.2</b>
<b>Indirect .....</b>	<b>19.5</b>	<b>20.2</b>	<b>21.1</b>	<b>22.1</b>	<b>23.2</b>	<b>23.6</b>	<b>23.5</b>	<b>23.3</b>	<b>23.1</b>	<b>22.9</b>	<b>4.2</b>	<b>4.3</b>

\*Less than 0.05 million metric tons.

Source: Energy Information Administration, Form EIA-1605.

entity-level direct emissions of other greenhouse gases for 2001.

## Reported Reductions

Entity-level reductions were, in general, much smaller than the corresponding emissions reported by participants in the Voluntary Reporting Program. Reported entity-level direct reductions totaled 169 million metric tons carbon dioxide equivalent for 2001, or 19 percent of all reported entity-level direct emissions. Reported entity-level indirect reductions totaled 28 million metric tons carbon dioxide equivalent, or 19 percent of all reported entity-level indirect emissions.

Reported entity-level direct emission reductions of carbon dioxide for 2001 totaled 117 million metric tons carbon dioxide (Table 29), equal to 2 percent of estimated total U.S. greenhouse gas emissions, and reported indirect emission reductions of carbon dioxide totaled 19 million metric tons. Reported direct reductions in emissions of other greenhouse gases for 2001 totaled 52 million metric tons carbon dioxide equivalent, and indirect emissions of other greenhouse gases totaled 10 million metric tons (Table 30).

The largest single direct reduction reported for 2001 was by TVA at 27 million metric tons carbon dioxide (direct reductions from stationary combustion sources), followed by Consol Coal Group at 19 million metric tons carbon dioxide equivalent and PG&E Corporation at 18 million metric tons carbon dioxide equivalent (reductions of methane emissions from other direct sources), followed by Niagara Mohawk Corporation at 15 million

metric tons carbon dioxide, Duke Energy Corporation at 14 million metric tons carbon dioxide, and FirstEnergy Corporation at 14 million metric tons carbon dioxide equivalent (direct reductions from stationary combustion sources). These six entity-level claims of reductions in direct emissions combined accounted for 63 percent (107 million metric tons) of total reported entity-level claims of direct emission reductions for 2001 (Table 31).

Most of the emission reductions reported were direct reductions attributable to energy-related carbon dioxide, although IWSA reported that its members' combustion of municipal solid waste reduced indirect emissions of carbon dioxide by 15 million metric tons and indirect emissions of methane by 6 million metric tons carbon dioxide equivalent. In addition, Southern Company and FPL Group reported indirect reductions of carbon dioxide emissions at 2 million metric tons each (Table 32). These reductions combined to account for 26 million metric tons carbon dioxide equivalent or 90 percent of total reported indirect emission reductions at the entity level for 2001.

Most of the larger reported reductions (direct and indirect) were computed on the basis of "modified" reference cases—i.e., the reporter indicated that emissions were lower than they would have been without the actions taken (Tables 31 and 32). TVA, for example, used a generation planning model to calculate what its emissions from 1990 through 2001 would have been if it had used the set of generating units operational in 1990 at the 1990 capacity factors and heat rates. Since 1990, TVA has greatly expanded nuclear generation. Browns Ferry

**Table 28. Largest Reported Entity-Level Direct Emissions of Other Greenhouse Gases by Reporter and Emissions Source, Data Year 2001**

Reporter	Gas	Emissions Source	Reported Direct Emissions (Thousand Metric Tons Carbon Dioxide Equivalent)	Percentage of Total Reported Direct Emissions of Other Greenhouse Gases
Consol Coal Group . . . . .	Methane	Other Direct	12,625.7	48.2
Jim Walters Resources, Inc. . . . .	Methane	Other Direct	5,492.9	21.0
Peabody Holding Company, Inc. . . . .	Methane	Other Direct	3,284.0	12.5
The Dow Chemical Company . . . . .	HFC-134a	Other Direct	1,055.7	4.0
The Dow Chemical Company . . . . .	Methane	Other Direct	1,020.3	3.9
Duke Energy Corporation . . . . .	Methane	Stationary Combustion	808.5	3.1
Public Service Enterprise Group . . . . .	Methane	Other Direct	723.3	2.8
Cinergy Corp. . . . .	Methane	Other Direct	361.2	1.4
Public Service Enterprise Group . . . . .	Sulfur Hexafluoride	Other Direct	282.0	1.1
Southern Company . . . . .	Sulfur Hexafluoride	Other Direct	222.0	0.8
Alcan Primary Metals Group – Sebree Works . . . . .	Perfluormethane	Other Direct	158.5	0.6
NiSource/NIPSCO . . . . .	Sulfur Hexafluoride	Other Direct	72.7	0.3
<b>Total . . . . .</b>			<b>26,106.8</b>	<b>99.6</b>

Source: Energy Information Administration, Form EIA-1605.

Unit 2 returned to service in 1991, Browns Ferry Unit 3 returned to service in 1995, and Watts Bar Unit 1 started commercial operation in 1996. TVA's reported carbon dioxide emissions from stationary combustion sources for 2001 were 5 million metric tons above 1990 levels but 27 million metric tons below what they would have been if the 1990 generation mix and heat rates had been used.

IWSA reported two sources of indirect reductions: (1) by burning municipal solid waste to generate electricity, its members made it possible for electric utilities to burn less coal; and (2) if the municipal solid waste had not been burned, it could reasonably have been expected to be landfilled, and some portion of the landfilled waste would have decomposed anaerobically, producing

**Table 29. Total Reported Entity-Level Carbon Dioxide Emission Reductions by Type and Source, Data Year 2001**  
(Million Metric Tons)

Type of Reduction and Emissions Source	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>Direct Reductions</b>											
Stationary Combustion . .	23.1	40.2	39.4	55.9	79.6	75.7	124.4	123.4	121.1	135.4	116.9
Transportation . . . . .	*	*	*	0.1	0.1	0.1	*	*	*	0.1	*
Other Direct Sources . . .	0.2	-1.2	-1.3	-1.4	-1.1	-0.8	-0.1	0.1	-0.1	*	-0.1
<b>Total Direct . . . . .</b>	<b>23.2</b>	<b>39.0</b>	<b>38.1</b>	<b>54.7</b>	<b>78.6</b>	<b>75.0</b>	<b>124.3</b>	<b>123.5</b>	<b>121.1</b>	<b>135.5</b>	<b>116.7</b>
<b>Indirect Reductions</b>											
Purchased Power . . . . .	*	-2.9	-4.4	-9.9	-8.6	0.5	3.2	10.3	10.6	-0.5	-6.5
Other Indirect Sources . .	12.9	13.7	13.3	15.2	18.8	20.5	20.5	20.9	23.9	24.6	25.3
<b>Total Indirect . . . . .</b>	<b>12.9</b>	<b>10.8</b>	<b>8.9</b>	<b>5.3</b>	<b>10.2</b>	<b>21.0</b>	<b>23.8</b>	<b>31.3</b>	<b>34.5</b>	<b>24.1</b>	<b>18.8</b>
<b>Carbon Sequestered . . .</b>	<b>0.6</b>	<b>1.6</b>	<b>6.0</b>	<b>6.1</b>	<b>6.8</b>	<b>6.9</b>	<b>7.7</b>	<b>7.9</b>	<b>7.9</b>	<b>7.3</b>	<b>7.5</b>

\*Less than 0.05 million metric tons.

Note: Negative numbers indicate increases in emissions.

Source: Energy Information Administration, Form EIA-1605.

**Table 30. Total Reported Entity-Level Reductions in Emissions of Other Greenhouse Gases by Gas and Source, Data Year 2001**  
(Thousand Metric Tons Carbon Dioxide Equivalent)

Gas and Type of Reduction	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>Methane</b>											
Direct . . . . .	6,039.4	8,337.4	16,305.8	22,425.6	22,586.1	27,174.4	31,680.7	35,448.3	43,069.0	47,814.3	51,284.0
Indirect . . . . .	1,732.2	2,713.0	3,162.2	3,562.1	3,954.8	4,646.7	5,643.3	6,305.8	7,388.2	8,599.4	9,538.1
<b>Nitrous Oxide</b>											
Direct . . . . .	-2.6	-2.7	-2.6	-2.4	-1.7	-1.4	-1.6	-4.0	-5.1	-668.5	-25.6
Indirect . . . . .	71.2	76.0	76.0	76.0	96.0	100.0	96.8	97.6	104.0	94.1	98.5
<b>Hydrofluorocarbons</b>											
Direct . . . . .	—	—	—	*	*	5.6	2.8	-25.2	-79.7	-19.2	-1,035.2
Indirect . . . . .	—	—	—	—	—	—	—	—	—	—	—
<b>Perfluorocarbons</b>											
Direct . . . . .	-0.3	37.7	37.9	105.6	126.3	148.2	95.2	220.4	301.1	277.7	441.2
Indirect . . . . .	3.1	3.3	4.0	7.3	7.3	14.8	16.7	20.8	11.1	9.5	20.9
<b>Sulfur Hexafluoride</b>											
Direct . . . . .	-9.1	21.1	85.4	9.2	-73.9	-273.4	101.1	456.3	1,565.6	1,610.9	1,821.1
Indirect . . . . .	—	—	—	—	—	—	0.1	0.1	0.1	0.1	0.1
<b>Total</b>											
<b>Direct . . . . .</b>	<b>6,027.4</b>	<b>8,393.4</b>	<b>16,426.4</b>	<b>22,538.1</b>	<b>22,636.7</b>	<b>27,053.5</b>	<b>31,878.4</b>	<b>36,095.8</b>	<b>44,850.9</b>	<b>49,015.2</b>	<b>52,485.6</b>
<b>Indirect . . . . .</b>	<b>1,806.4</b>	<b>2,792.3</b>	<b>3,242.2</b>	<b>3,645.4</b>	<b>4,058.1</b>	<b>4,761.6</b>	<b>5,756.9</b>	<b>6,424.2</b>	<b>7,503.4</b>	<b>8,703.1</b>	<b>9,657.7</b>

\*Less than 0.05 thousand metric tons.

— = none reported.

Note: Negative numbers indicate increases in emissions.

Source: Energy Information Administration, Form EIA-1605.

methane emissions. Thus, IWSA reported that burning the waste reduced both fossil fuel burning and methane emissions on the part of others.

Thirty-one companies reported emission reductions or sequestration at the entity level using a “basic” reference case. A basic reference case is defined as total emissions in some baseline year—usually, but not always, 1990. In these cases, reductions were calculated as the difference between actual emissions in the data year and emissions in the baseline year. Of these 31 companies, 16 were electric power producers, including Consolidated Edison of New York, Inc., DTE Energy/Detroit Edison, Duke Energy Corporation, Florida Power Corporation, and Niagara Mohawk Corporation. Also reporting entity-level emission reductions using a “basic” reference case

were 15 reporters that were not electricity producers, including Allergan, Inc., General Motors Corporation, International Truck and Engine Corporation, Lucent Technologies, Inc., Republic Metals Group, Rolls-Royce Corporation, and Sunoco, Inc.

For 2001, the Consol Coal Group reported the largest individual entity-level direct emissions reduction calculated with a basic reference case, at 19 million metric tons carbon dioxide, accounting for 11 percent of total reported carbon dioxide equivalent direct reductions during 2001. This direct reduction was from Consol’s other direct source activities. In addition, the Niagara Mohawk Power Corporation, another entity-level reporter that relied on the use of a basic reference case to calculate emission reductions, reported the fourth

**Table 31. Largest Individual Reported Entity-Level Direct Emission Reductions by Gas, Source, and Type of Reference Case Employed, Data Year 2001**

Reporter	Gas	Source	Reference Case	Reported Direct Emission Reduction (Million Metric Tons Carbon Dioxide Equivalent)	Percent of Total Reported Direct Reductions
Tennessee Valley Authority . . . . .	CO <sub>2</sub>	Stationary Combustion	M	27.0	16.0
Consol Coal Group . . . . .	CH <sub>4</sub>	Other Direct	B	18.7	11.1
PG&E Corporation . . . . .	CH <sub>4</sub>	Other Direct	B	17.9	10.6
Niagara Mohawk Power Corporation . .	CO <sub>2</sub>	Stationary Combustion	B	15.0	8.9
Duke Energy Corporation . . . . .	CO <sub>2</sub>	Stationary Combustion	M	14.3	8.4
FirstEnergy Corporation . . . . .	CO <sub>2</sub>	Stationary Combustion	M	14.2	8.4
Southern Company . . . . .	CO <sub>2</sub>	Stationary Combustion	M	11.6	6.9
FPL Group . . . . .	CO <sub>2</sub>	Stationary Combustion	M	9.0	5.3
Entergy Services, Inc. . . . .	CO <sub>2</sub>	Stationary Combustion	M	6.7	4.0
Palmer Capital Corporation . . . . .	CH <sub>4</sub>	Other Direct	B	5.6	3.3
Public Service Enterprise Group . . . . .	CO <sub>2</sub>	Stationary Combustion	M	5.1	3.0
Jim Walter Resources, Inc. . . . .	CH <sub>4</sub>	Other Direct	M	5.1	3.0
Constellation Energy Group, Inc. . . . .	CO <sub>2</sub>	Stationary Combustion	M	5.1	3.0
Reliant Energy – HL&P . . . . .	CO <sub>2</sub>	Stationary Combustion	M	4.8	2.8
Bethlehem Steel Corporation . . . . .	CO <sub>2</sub>	Stationary Combustion	M	3.8	2.2
The Dow Chemical Company . . . . .	CO <sub>2</sub>	Stationary Combustion	B	3.8	2.2
Florida Power Corporation . . . . .	CO <sub>2</sub>	Stationary Combustion	M	2.9	1.7
Municipal Electric Authority of Georgia (MEAG Power) . . . . .	CO <sub>2</sub>	Stationary Combustion	M	2.9	1.7
PG&E Corporation . . . . .	CO <sub>2</sub>	Stationary Combustion	M	2.4	1.4
KeySpan Energy Corporation . . . . .	CO <sub>2</sub>	Stationary Combustion	B	2.2	1.3
NiSource/NIPSCO . . . . .	CH <sub>4</sub>	Other Direct	M	2.1	1.3
General Motors Corporation . . . . .	CO <sub>2</sub>	Stationary Combustion	B	1.7	1.0
Alliant Energy . . . . .	CO <sub>2</sub>	Stationary Combustion	M	1.6	0.9
Hawaiian Electric Company, Inc. . . . .	CO <sub>2</sub>	Stationary Combustion	B	1.5	0.9
Sunoco, Inc. . . . .	CO <sub>2</sub>	Stationary Combustion	B	1.5	0.9
<b>Total . . . . .</b>				<b>186.4</b>	<b>110.2</b>

B = Basic. M = Modified.

Note: Twenty-six participants in the Voluntary Reporting Program reported negative entity-level direct emissions reductions.

Source: Energy Information Administration, Form EIA-1605.

largest single direct emissions reduction at 15 million metric tons carbon dioxide, representing 9 percent of total reported carbon dioxide equivalent direct reductions for 2001.

## Future Commitments To Reduce Emissions

The Voluntary Reporting Program also permits entities to report commitments to reduce emissions or to take action to reduce emissions in the future. In previous years, virtually all companies reporting future commitments were electric utility participants in the Climate Challenge voluntary program. However, 47 (55 percent) of the 85 future commitment reporters in 2001—including the Dow Chemical Company, Lucent Technologies, Inc., Noranda Aluminum, Inc., and Sunoco, Inc.—were not utilities. Fifteen of these nonutility reporters indicated that they were participants in other voluntary programs, such as Climate Wise for manufacturers and the Voluntary Aluminum Industrial Partnership.

There are three types of future commitments in the Voluntary Reporting Program: entity commitments, financial commitments, and project commitments. Entity and project commitments roughly parallel the entity and project aspects of emissions reporting: an entity commitment is a commitment to reduce the emissions of an entire organization; and a project commitment is a commitment to take a particular action that will have the effect of reducing the reporter's future emissions. A financial commitment has no emissions reporting counterpart: it is a commitment to spend a particular sum of money on emission reduction activities, without a specific promise on the emissions consequences of the expenditure. Most firms reported more than a single commitment, and many reported more than one type of commitment. Entity commitments are usually to make emissions lower than some level in a target year. Project commitments are usually to reduce emissions by a particular amount over a period of years. Because project commitments can cover a range of years, they are sometimes difficult to compare directly with project-level data for a single year of "achieved reductions."

**Table 32. Largest Individual Reported Entity-Level Indirect Emission Reductions by Gas, Source, and Type of Reference Case Employed, Data Year 2001**

Reporter	Gas	Source	Reference Case	Reported Indirect Emission Reduction (Million Metric Tons Carbon Dioxide Equivalent)	Percent of Total Reported Indirect Reductions
Integrated Waste Services Association . . . . .	CO <sub>2</sub>	Other Indirect	M	15.4	54.5
Integrated Waste Services Association . . . . .	CH <sub>4</sub>	Other Indirect	M	6.1	21.6
Southern Company . . . . .	CO <sub>2</sub>	Other Indirect	M	2.3	8.2
FPL Group . . . . .	CO <sub>2</sub>	Other Indirect	M	1.8	6.3
Portland General Electric Co. . . . .	CO <sub>2</sub>	Purchased Power	M	1.8	6.2
Public Service Enterprise Group . . . . .	CO <sub>2</sub>	Purchased Power	M	1.6	5.8
Sacramento Municipal Utility District . . . . .	CO <sub>2</sub>	Purchased Power	B	1.3	4.5
Alliant Energy . . . . .	CO <sub>2</sub>	Other Indirect	M	1.0	3.4
PG&E Corporation . . . . .	CH <sub>4</sub>	Other Indirect	M	1.0	3.4
Los Angeles Department of Water and Power . . . . .	CO <sub>2</sub>	Purchased Power	B	0.9	3.3
FirstEnergy Corporation . . . . .	CH <sub>4</sub>	Other Indirect	M	0.9	3.2
CMS Energy . . . . .	CO <sub>2</sub>	Other Indirect	M	0.7	2.6
Cinergy Corp. . . . .	CH <sub>4</sub>	Other Indirect	M	0.7	2.4
Reliant Energy – HL&P . . . . .	CO <sub>2</sub>	Other Indirect	M	0.6	2.3
PG&E Corporation . . . . .	CO <sub>2</sub>	Other Indirect	M	0.6	2.0
Peabody Holding Company, Inc. . . . .	CO <sub>2</sub>	Purchased Power	B	0.5	1.9
<b>Total . . . . .</b>				<b>37.2</b>	<b>131.0</b>

B = Basic. M = Modified.

Note: Twenty-four participants in the Voluntary Reporting Program reported negative entity-level indirect emission reductions.

Source: Energy Information Administration, Form EIA-1605.

## Entity-Level Commitments

Twenty-five participants in the Voluntary Reporting Program reported entity-level commitments to reduce greenhouse gas emissions. These firms made promises to reduce, avoid, or sequester future emissions at the corporate level. As in the case of entity reporting, some commitments were to reduce emissions below a specific baseline, others to limit the growth of emissions per unit of output, and others to limit emissions by a specific amount in comparison with a baseline emissions growth trend. Participants reporting entity-level commitments to reduce greenhouse gas emissions in the future included Alliant Energy, FirstEnergy Corporation, FPL Group, IBM, Los Angeles Department of Water and Power, Niagara Mohawk Corporation, Noranda Aluminum Inc., and TVA.

In their reports for 2001, reporters of entity-level commitments pledged to reduce emissions in the future by 94 million metric tons carbon dioxide (Table 33), with 24 percent of the total coming from the TVA (23 million metric tons carbon dioxide), followed by the Los Angeles Department of Water and Power at 17 percent (16 million metric tons carbon dioxide), Niagara Mohawk Power at 16 percent (15 million metric tons carbon dioxide), FPL Group at 11 percent (10 million metric tons carbon dioxide), and City of Klamath Falls–Cogen at 7 percent (6 million metric tons carbon dioxide). These five commitments combined accounted for 75 percent (70 million metric tons carbon dioxide) of the total

reported entity-level commitments to reduce greenhouse gases. TVA and FPL Group measured their reduction commitments using modified reference cases. The three others used basic reference cases.

## Project-Level Commitments

Twenty-three companies reported on commitments to undertake 105 individual emission reduction projects. Some of the commitments were linked to future results from projects already underway and forming part of the reporters' submissions. Others were for projects not yet begun. Twenty-three reporters provided data on the quantities of reductions expected for 104 projects.

Reporters indicated that projects were expected to reduce future emissions by 151 million metric tons carbon dioxide equivalent. Of that amount, 60 percent (90 million metric tons) would be methane and 38 percent (57 million metric tons) would be carbon dioxide.

The single largest project-level commitment was made by Fidelity Exploration & Production Company (87 million metric tons carbon dioxide equivalent of methane), followed by TVA (18 million metric tons carbon dioxide) and FirstEnergy Corporation (4 million metric tons carbon dioxide). These three project-level commitments accounted for 72 percent of total reported project-level commitments (Table 34).

Fidelity's commitment is related to its Tongue River project, which involves pre-mining degasification of coal

**Table 33. Largest Reported Individual Entity-Level Commitments To Reduce Greenhouse Gases by Gas and Type of Reference Case, Data Year 2001**

Company	Gas	Reference Case	Carbon Dioxide Equivalent (Million Metric Tons)	Percent of Total Reported Reduction Commitments
Tennessee Valley Authority. . . . .	CO <sub>2</sub>	M	22.6	23.9
Los Angeles Department of Water and Power . . . . .	CO <sub>2</sub>	B	16.4	17.4
Niagara Mohawk Power Corporation . . . . .	CO <sub>2</sub>	B	15.1	16.1
FPL Group. . . . .	CO <sub>2</sub>	M	10.0	10.6
City of Klamath Falls- Cogen. . . . .	CO <sub>2</sub>	B	6.3	6.7
Entergy Services, Inc. . . . .	CO <sub>2</sub>	B	5.0	5.3
FirstEnergy Corporation . . . . .	CO <sub>2</sub>	M	2.9	3.0
Alliant Energy . . . . .	CO <sub>2</sub>	M	2.4	2.5
Greater New Bedford Regional Refuse Mgt District . .	CH <sub>4</sub>	M	2.1	2.3
Pacific Natural Energy, LLC . . . . .	CH <sub>4</sub>	M	2.1	2.2
South Carolina Electric & Gas Company . . . . .	CO <sub>2</sub>	B	1.8	1.9
Noranda Aluminum Inc. . . . .	CF <sub>4</sub>	B	1.8	1.9
Alliant Energy . . . . .	CO <sub>2</sub>	M	1.8	1.9
Public Service Company of New Mexico. . . . .	CO <sub>2</sub>	B	1.5	1.5
<b>Total. . . . .</b>			<b>91.7</b>	<b>97.2</b>

CO<sub>2</sub> = carbon dioxide. CH<sub>4</sub> = methane. CF<sub>4</sub> = perfluoromethane. B = Basic. M = Modified.

Note: Reporters are not asked to indicate whether future reductions will be direct or indirect.

Source: Energy Information Administration, Form EIA-1605.

deposits in the Powder River Basin of Wyoming and Montana. According to Fidelity, extraction of the methane, which is being sold to natural gas customers in large volumes, began in 2000. This project was reported as a commitment because the avoided methane emissions will not occur unless coal extraction begins sometime in the future. In the case of TVA, the project was described as “an increase in low emitting capacity,” most likely a result of TVA’s nuclear program. The FirstEnergy Corporation commitment was described as “undertaking supply side efficiency improvements.”

## Financial Commitments

Twenty-one companies, 18 of which were electric utilities, made a total of 35 financial commitments to reduce greenhouse gas emissions in the future. The total amount of funds promised was \$51 million. The single largest reported financial commitment to reduce

greenhouse gas emissions was that of Entergy Services, Inc., which committed to spend \$25 million on a “carbon burnout plant” to make fly ash suitable for sale to cement companies, followed by Noranda Aluminum, Inc. (\$5.5 million), Ameren Corporation (\$5 million), and Minnesota Power (\$3 million). FirstEnergy Corporation, CLE Resources, and Kansas City Power & Light Company each committed to spend \$2 million. These seven companies reported financial commitments that together accounted for 87 percent of the reported total for 2001 (Table 35). The largest reported expenditures during 2001 were made by CLE Resources and Entergy Services, Inc. (\$2 million each), followed by Noranda Aluminum, Inc. (\$1.1 million) and Ameren Corporation (\$0.5 million). Kansas City Power & Light Company and Dynegy Midwest Generation, Inc., each spent \$0.4 million. These six expenditures combined accounted for 90 percent of the total reported expenditures in 2001 to reduce greenhouse gas emissions (Table 36).

**Table 34. Largest Reported Individual Project-Level Commitments To Reduce Greenhouse Gas Emissions, Data Year 2001**

Reporter	Project Description	Carbon Dioxide Equivalent (Million Metric Tons)	Percent of Total Reported Project Commitments
Fidelity Exploration & Production Company . . .	Pre-mining degasification of coal deposits (Tongue River Project)	87.1	57.8
Tennessee Valley Authority . . . . .	Increase in low-emitting capacity	17.6	11.7
FirstEnergy Corporation . . . . .	Undertake supply-side efficiency improvements	4.4	2.9
City of Klamath Falls – Cogen . . . . .	Commitment of \$1.5 million to the Forest Resource Trust program to support reforestation of underproducing lands in western Oregon	3.0	2.0
FirstEnergy Corporation . . . . .	Nuclear generation operation improvement	2.5	1.7
City of Klamath Falls – Cogen . . . . .	Commitment to invest \$1 million to extract useful energy for electricity production from a largely untapped source, methane.	2.5	1.6
Municipal Electric Authority of Georgia (MEAG Power) . . . . .	Increase in nuclear unit availability	2.5	1.6
Alliant Energy . . . . .	Modified forest management	2.4	1.6
Tennessee Valley Authority . . . . .	Fuel switching	2.2	1.5
Greater New Bedford Regional Refuse Mgt District . . . . .	Landfill gas control and future utilization	2.1	1.4
City of Klamath Falls- Cogen . . . . .	Cogeneration of steam to displace fossil-fired boilers at an off-site industrial facility	2.0	1.3
CMS Energy . . . . .	Use of large quantities of residue natural gas, currently being flared	2.0	1.3
Noranda Aluminum Inc. . . . .	Reduction of PFC emissions through anode effect reduction program	1.8	1.2
Alliant Energy . . . . .	Other energy end-use projects/activities (electric)	1.7	1.1
PacifiCorp. . . . .	Other energy end-use projects/activities	1.3	0.9
North American Carbon, Inc. . . . .	At Saint Felicien cogeneration project in Quebec, Canada, burning approximately 330,000 tons of green wood waste per year that would otherwise have been landfilled at a non-flared site	1.2	0.8
Santee Cooper . . . . .	Cross Unit 2 retrofit	1.1	0.8
Municipal Electric Authority of Georgia (MEAG Power) . . . . .	Increase in nuclear unit capacity	1.0	0.6
Santee Cooper . . . . .	Upgrade to Summer nuclear station	0.9	0.6
<b>Total . . . . .</b>		<b>139.3</b>	<b>92.4</b>

Source: Energy Information Administration, Form EIA-1605.

**Table 35. Largest Reported Individual Entity-Level Financial Commitments To Reduce Greenhouse Gas Emissions, Data Year 2001**

Reporter	Industry	Financial Commitment (Dollars)	Voluntary Program Affiliation	Percent of Total Reported Financial Commitments
Entergy Services, Inc.	Electric, Gas, and Sanitary Services	25,000,000	None	48.8
Noranda Aluminum Inc.	Primary Metals Industries	5,500,000	Voluntary Aluminum Industrial Partnership	10.7
Ameren Corporation (formerly UE and CIPS)	Electric, Gas, and Sanitary Services	5,000,000	Climate Challenge	9.8
Minnesota Power	Electric, Gas, and Sanitary Services	3,039,000	Climate Challenge	5.9
CLE Resources	Holding and Other Investment Offices	2,000,000	Climate Challenge	3.9
FirstEnergy Corporation	Electric, Gas, and Sanitary Services	2,000,000	Climate Challenge	3.9
Kansas City Power & Light Company	Electric, Gas, and Sanitary Services	2,000,000	None	3.9
City of Klamath Falls- Cogen	Services, not elsewhere classified	1,500,000	None	2.9
City of Klamath Falls- Cogen	Services, not elsewhere classified	1,000,000	None	2.0
PacifiCorp	Electric, Gas, and Sanitary Services	610,000	Climate Challenge	1.2
Bountiful City Light & Power	Electric, Gas, and Sanitary Services	517,296	Climate Challenge	1.0
City of Klamath Falls- Cogen	Services, not elsewhere classified	500,000	None	1.0
Dynegy Midwest Generation Inc.	Electric, Gas, and Sanitary Services	450,000	Climate Challenge	0.9
FirstEnergy Corporation	Electric, Gas, and Sanitary Services	400,000	Climate Challenge	0.8
Kansas City Power & Light Company	Electric, Gas, and Sanitary Services	264,000	Climate Challenge	0.5
Connectiv Atlantic Generation (CAG)	Electric, Gas, and Sanitary Services	200,000	Climate Challenge	0.4
FirstEnergy Corporation	Electric, Gas, and Sanitary Services	200,000	Climate Challenge	0.4
NiSource/NIPSCO	Electric, Gas, and Sanitary Services	200,000	Climate Challenge	0.4
Dynegy Midwest Generation Inc.	Electric, Gas, and Sanitary Services	105,000	Climate Challenge	0.2
TXU	Electric, Gas, and Sanitary Services	105,000	Climate Challenge	0.2
TXU	Electric, Gas, and Sanitary Services	105,000	Climate Challenge	0.2
City of Klamath Falls- Cogen	Services, not elsewhere classified	100,000	None	0.2
Constellation Energy Group, Inc.	Electric, Gas, and Sanitary Services	100,000	Climate Challenge	0.2
<b>Total</b>		<b>50,895,296</b>		<b>99.4</b>

Source: Energy Information Administration, Form EIA-1605.

**Table 36. Reported Entity-Level Financial Expenditures To Reduce Greenhouse Gas Emissions, Data Year 2001**

Reporter	Industry	2001 Financial Expenditure (Dollars)	Voluntary Program Affiliation	Percent of Total Reported Financial Expenditures
CLE Resources	Holding and Other Investment Offices	2,000,000	None	28.1
Entergy Services, Inc.	Electric, Gas, and Sanitary Services	2,000,000	None	28.1
Noranda Aluminum Inc.	Primary Metals Industries	1,113,495	Voluntary Aluminum Industrial Partnership	15.6
Ameren Corporation (formerly UE and CIPS)	Electric, Gas, and Sanitary Services	500,000	Climate Challenge	7.0
Kansas City Power & Light Company	Electric, Gas, and Sanitary Services	420,000	Climate Challenge	5.9
Dynegy Midwest Generation Inc.	Electric, Gas, and Sanitary Services	400,000	Climate Challenge	5.6
PacifiCorp	Electric, Gas, and Sanitary Services	218,067	Climate Challenge	3.1
NiSource/NIPSCO	Electric, Gas, and Sanitary Services	200,000	Climate Challenge	2.8
Bountiful City Light & Power	Electric, Gas, and Sanitary Services	160,647	Climate Challenge	2.3
Kansas City Power & Light Company	Electric, Gas, and Sanitary Services	35,000	Climate Challenge	0.5
TXU	Electric, Gas, and Sanitary Services	20,000	Climate Challenge	0.3
TXU	Electric, Gas, and Sanitary Services	20,000	Climate Challenge	0.3
Dynegy Midwest Generation Inc.	Electric, Gas, and Sanitary Services	10,000	Climate Challenge	0.1
Kansas City Power & Light Company	Electric, Gas, and Sanitary Services	10,000	Climate Challenge	0.1
Cleco Corporation	Electric, Gas, and Sanitary Services	5,000	Climate Challenge	0.1
NiSource/NIPSCO	Electric, Gas, and Sanitary Services	5,000	Climate Challenge	0.1
Xcel Energy	Electric, Gas, and Sanitary Services	5,000	Climate Challenge	0.1
<b>Total</b>		<b>7,122,209</b>		<b>100.0</b>

Source: Energy Information Administration, Form EIA-1605.